

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) Method for producing steel products (1) with optimum surface quality, with ultralow carbon contents, nitrogen contents, total oxygen contents, high-strength and/or stainless steel grades, comprising the steps of: melting (2) the steel and treating the steel in a ladle metallurgy installation (3); subsequently continuously casting the steel (4) into a thin slab (5a) in a continuous casting mold (14), partially deforming, cutting the slab into partial strand lengths (15), generally descaling (28), heating to rolling temperature and homogenizing in a soaking furnace (16), generally descaling again and rolling in a finishing mill (6a), coiling in a first coiling station (20) immediately downstream of a last finishing stand (19) or, alternatively, downstream of a cooling line (21), and adjusting a the final microstructure (9) in a cooling line (21) according to the desired grade of steel by cooling on a runout table (22), and generally finish-coiling the rolled product (1a) in a second coiling station (23); providing a plurality of process routes for

~~producing the molten steel including and further including the step of selecting a process route (10, 100, 12, 13) for producing the molten steel according to a desired final microstructure (9) from the following:~~

(a) by producing the molten steel (1b) in a melting installation (2a), which is not a steelworks converter, by a vacuum degassing system (27), and in a ladle furnace (25), or

(b) by melting in an electric arc furnace (2b) or in a two vessel electric arc furnace, and in the a ladle furnace (25) with an electrode system (31), and in a vacuum degassing system, or

(c) by melting in an electric arc furnace installation (35) or the two vessel electric arc furnace (30) capable of a two stag process or an individual furnace vessel (30), and in the a ladle furnace (25), and in a differential-pressure vacuum degassing system (43), or

(d) by melting in the electric arc furnace (2b) with additions of alloying materials (26), a partial-quantity degassing in the ladle furnace (25), or a vacuum degassing system (27) and a ladle degassing (27); and selecting a process route for producing the molten steel from the process routes (a) through (d) according to a desired final microstructure (9).

2. (Previously presented) Method in accordance with claim 1, wherein successive treatment steps (24) are carried out as a first process route (10)

in the electric arc furnace (2b) and
in a ladle metallurgy installation (3)

with at least one vacuum degassing system (27) followed by the ladle furnace (25) for decarbonization, reduction, and addition of alloying materials (26), and

with the ladle furnace (25) for slag formation, for slag work, for temperature control, for final adjustment of a the final analysis, and for purity rinsing to a desired Δ $\langle Al \rangle$ content.

3. (Previously presented) Method in accordance with claim 1, wherein successive treatment steps (24) are carried out as a second process route (11)

in the electric arc furnace (2b) or the ~~an~~ electric arc furnace installation (35) and

in a ladle metallurgy installation (3),

with the ladle furnace (25) for slag formation
for the heating

and for the prereduction of the steel, with a vacuum degassing system (27)

for the decarbonization and denitrogenation
for the reduction of the slag on the steel surface
for the desulfurization under reduced pressure,
for a final adjustment of the final analysis and
for the purity rinsing to a desired Δ <Al> under
atmospheric pressure.

4. (Previously presented) Method in accordance with claim 1,
wherein successive treatment steps (24) are carried out as a
third process route (12)

in the electric arc furnace (2b) or in the electric arc
furnace installation (35) and

in a ladle metallurgy installation (3)

with the ladle furnace (25)

for temperature control and

for prereduction

with at least one differential-pressure degassing
process (43) for the decarbonization, desulfurization and
denitrogenation, reduction, and addition of alloying materials
from an iron alloy, and with a final adjustment of the final
analysis and

for purity rinsing to $\langle \text{Al} \rangle$ contents <15 ppm bound aluminum (Al_2O_3).

5. (Previously presented) Method in accordance with claim 1, wherein successive treatment steps (24) are carried out as a fourth process route (13)

in an electric arc furnace (2b) or in an electric arc furnace installation (35) and

in a ladle metallurgy installation (3) with a ladle furnace (25) for temperature control and a subsequent partial-quantity degassing (27a) for decarbonization and denitrogenation, desulfurization, with a ladle degassing (27) for a final adjustment of the final analysis and for purity rinsing to desired $\Delta \langle \text{Al} \rangle$ contents.

6. (Previously presented) Method in accordance with claim 1, wherein a descaling (28) is carried out directly below the continuous casting mold (14).

7. (Previously presented) Method in accordance with claim 1, wherein a controlled high-temperature oxidation (29) by a controlled atmosphere is carried out in the soaking furnace (16).

8. (Previously presented) Method in accordance with claim 1, wherein the partial strand lengths (15) are inductively heated downstream of the soaking furnace (16).

9. (Previously presented) Method in accordance with claim 1, wherein the partial strand lengths (15) are subjected to controlled cooling upstream of a first finishing stand (17) of the finishing mill (6a).

10. (Previously presented) Method in accordance with claim 1, wherein continuous product (1c) coiled in the second coiling station (23) is subjected to controlled cooling.

11. (Previously presented) Method in accordance with claim 1, wherein the electric arc furnace installation (35) comprises two furnace vessels (30), which are alternately operated with a swiveled electrode system (31) and an oppositely swiveled top injection lance (32), are operated with pig iron, direct reduced charge materials, and scrap, and are operated partially with electric power and/or chemical energy.

12. (Previously presented) Method in accordance with claim 1, wherein steels with multiphase microstructure are produced.

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Claims 13-19 (Canceled)